

Document No. 208-4BP-IM

STC SA02092AK

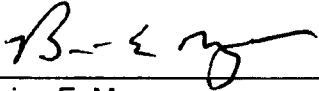
HARTZELL FOUR-BLADED PROPELLER INSTALLATION INSTRUCTIONS

ON CESSNA 208(A,B) AIRCRAFT

LOG OF REVISIONS

| Revision | Revised Page(s) | Description of Revision | Engineer | Date |
|----------|-----------------|-----------------------------------------------------------------------------------|----------|------------|
| New | All | Original Release | | 7/16/1997 |
| A | All | Rewrite in Hartzell Format, add alternate relay, relay mounting plate and CB P/Ns | L. Doud | 10/23/2012 |

NOTE: All changes are indicated by a black vertical line along the left margin.

FAA Approved 
Brian E. Meyer
STC ODA administrator
Hartzell ODA-100082-CE

Date NOVEMBER 1, 2012

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HARTZELL FOUR-BLADED PROPELLER INSTALLATION INSTRUCTIONS

ON CESSNA 208(A,B) AIRCRAFT

Please read these instructions and the instructions for Continued Airworthiness before starting installation. If you have any questions regarding installation of this STC, please contact Hartzell Propeller at:

*Phone: (937) 778-4379 or
1-800-942-7767*

E-mail: techsupport@hartzellprop.com

Document No. 208-4BP-IM

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HARTZELL FOUR-BLADED PROPELLER INSTALLATION INSTRUCTIONS

ON CESSNA 208(A,B) AIRCRAFT

Effectivity: Cessna Models 208, 208A, and 208B

Purpose: Installation of Hartzell HC-D4N-3R/D9511F(K) four blade (96" dia) propeller and D-630-3P spinner assembly.

Approval: This installation is FAA approved under Supplemental Type Certificate.

References:

1. Cessna 208 Series Maintenance Manual
2. Cessna 208 Series Illustrated Parts Catalog
3. Hartzell Propeller Manual No. 149, *Propeller Owner's Manual and Logbook*
4. Maintenance Manual Supplement, Document No. 208-4BP-MMS

Man-Hours: Approximately 16.0 man-hours are required to complete this installation.

Material:

Required parts are available from Hartzell Propeller, Inc., One Propeller Place, Piqua, Ohio 45356-2634, USA.

| Part Number | Description | Qty/Airplane |
|-------------|----------------------------------------------------------------------------|--------------|
| | Non-De-ice Equipped Propeller (HC-D4N-3R/D9511F) and Spinner (D630-3P) Kit | 1 |
| | De-ice Equipped Propeller (HC-D4N-3R/D9511FK) and Spinner (D630-3P) Kit | 1 |

Weight and Balance:

The following is applicable to all Caravan Models:

| Existing Propeller: | De-ice Equip. | Weight Increase | Effective Arm | Moment Increase | Mom/1000 Increase |
|----------------------------|---------------|-----------------|---------------|-----------------|-------------------|
| Hartzell 3-blade Composite | YES | 9.0 lb | 27.5 | 247.5 in-lb | .25 |
| | NO | 5.7 lb | | 156.7 in-lb | .16 |
| McCauley 3-blade | YES | 15.0 lb | | 412.5 in-lb | .41 |
| | NO | 11.7 lb | | 321.8 in-lb | .32 |

Document No. 208-4BP-IM

STC SA02092AK

HARTZELL FOUR-BLADED PROPELLER INSTALLATION INSTRUCTIONS

ON CESSNA 208(A,B) AIRCRAFT

NOTE: Installation Instructions vary depending on existing propeller installation; use the appropriate instruction. Please read entire Instructions before beginning installation.

Installation Instructions for replacement of existing HARTZELL propeller:

1. Remove the existing Hartzell propeller from the airplane.
 - Refer to chapter 61 of the 208 Maintenance Manual for removal procedures.
2. (For de-ice-equipped airplanes only) Replace existing de-ice system components with the new components supplied in the de-ice kit (brush-block bracket, brush block, ammeter, etc.).

NOTE: ASSURE THAT BRUSHES ARE ADJUSTED TO AFT MOST POSITION OR INSTALL AFTER INSTALLATION OF PROPELLER TO AVOID DAMAGE TO BRUSHES AS THE PROPELLER IS BEING INSTALLED.

- Refer to BF Goodrich drawing number 5E2620 and installation instructions for installation of components included with BF Goodrich kits 67-931-1 (Propeller) and 67-931-3 (Airframe).
 - Refer to drawing 208-4BP-W1 (2 sheets) for details on wiring and to drawing 208-4BP-WR1 for wire routing information.
 - Specific instructions on relay and shunt installation can be found on drawing 103818 (for use with 6041H201 relay) or on drawing 208-4BP-RI1 (for use with MS24140-D1 relay).
 - Remove Varistor (Cessna P/N 2670069) located on forward side of firewall (not used in this installation).
 - Replace "Prop Anti-Ice" circuit breaker with supplied 40 AMP circuit breaker. For early model Caravans, the two "STBY PWR" circuit breakers will also have to be upgraded to 40 AMP circuit breakers. The applicable serial numbers are referenced in the following parts list.
 - Install all wiring, connectors and components in accordance with AC43.13-1() and -2() Acceptable Methods, Techniques, Practices, unless otherwise specified.
3. Install new Hartzell 4-blade propeller on airplane.
 - Refer to chapter 61 of the 208 Maintenance Manual and to the Propeller's Owner's Manual for installation procedures; the latter will supersede the former regarding details specific to this propeller model.
 4. Remove / Remark / Reinstall Indicator, Prop RPM (P/N 2606014-1). Have indicator remarked at an approved instrument repair facility in accordance with drawing number 208-4BP-P1.
 5. Test the operation of the propeller de-icers:

Document No. 208-4BP-IM

STC SA02092AK

HARTZELL FOUR-BLADED PROPELLER INSTALLATION INSTRUCTIONS

ON CESSNA 208(A,B) AIRCRAFT

NOTE: DO NOT LEAVE THE DE-ICERS ON FOR MORE THAN 1 CYCLE (3 MINUTES) TO PREVENT OVERHEATING. A MECHANIC SHOULD BE POSITIONED AT THE PROPELLER TO MANUALLY ROTATE THE PROP TO REDUCE BRUSH ARCING AND TO CHECK FOR HEAT.

- With the battery switch on and the prop anti-ice circuit breakers pushed in, temporarily place a jumper between the terminals "1" and "3" at the pressure switch to test the "auto" function of the propeller de-icers. The propeller de-icers should cycle (90 seconds on and 90 seconds off) and each one should get warm. The anti-ice ammeter should read in the green arc.
 - After the propeller de-icers have cooled, put the Prop Anti-Ice switch to the "manual" position and the anti-ice ammeter should read in the green arc.
 - Do not use the propeller anti-ice for the initial 30 minutes of flight after installation to allow the brushes to seat properly on the slip ring.
6. Insert the supplied POH/AFM Supplement in the airplane's POH/AFM.
 7. Update the airplane's weight and balance records and equipment list.
 8. Complete FAA form 337 stating that this propeller has been installed in accordance with this STC.
 9. Make appropriate logbook entries.

Installation Instructions for replacement of existing McCAULEY propeller:

1. Remove the existing McCauley propeller from the airplane.
 - Refer to chapter 61 of the 208 Maintenance Manual for removal procedures.
2. (For de-ice-equipped airplanes only) Replace existing de-ice system components with the new components supplied in the de-ice kit (brush-block bracket, brush block, ammeter, etc.).

NOTE: ASSURE THAT BRUSHES ARE ADJUSTED TO AFT MOST POSITION OR INSTALL AFTER INSTALLATION OF PROPELLER TO AVOID DAMAGE TO BRUSHES AS THE PROPELLER IS BEING INSTALLED.

- Refer to BF Goodrich drawing number 5E2620 and installation instructions for installation of components included with BF Goodrich kits 67-931-1 (Propeller) and 67-931-2 (Airframe).
- Refer to drawing 208-4BP-W1 (2 sheets) for details on wiring and to drawing 208-4BP-WR1 for wire routing information.
- Specific instructions on relay and shunt installation can be found on drawing 103818 (for use with 6041H201 relay) or on drawing 208-4BP-RI1 (for use with MS24140-D1 relay).

Document No. 208-4BP-IM

STC SA02092AK

HARTZELL FOUR-BLADED PROPELLER INSTALLATION INSTRUCTIONS

ON CESSNA 208(A,B) AIRCRAFT

- Remove Varistor (Cessna P/N 2670069) located on forward side of firewall (not used in this installation).
 - Replace "Prop Anti-Ice" circuit breaker with supplied 40 AMP circuit breaker. For early model Caravans, the two "STBY PWR" circuit breakers will also have to be upgraded to 40 AMP circuit breakers. The applicable serial numbers are referenced in the following parts list.
 - Install all wiring, connectors and components in accordance with AC43.13-1() and -2(), Acceptable Methods, Techniques, Practices, unless otherwise specified.
3. Install new Hartzell 4-blade propeller on airplane.
- Refer to chapter 61 of the 208 Maintenance Manual and to chapter 15 of the Propeller's Owner's Manual for installation procedures; the latter will supersede the former regarding details specific to this propeller model.
 - Some re-rigging of the reversing lever and controls will be required – follow the procedures outlined in chapter 61 of the 208 Maintenance Manual.
4. Remove / Remark / Reinstall Indicator, Prop RPM (P/N 2606014-1). Have indicator remarked at an approved instrument repair facility in accordance with drawing number 208-4BP-P1.
5. Test the operation of the propeller de-icers:

NOTE: DO NOT LEAVE THE DE-ICERS ON FOR MORE THAN 1 CYCLE (3 MINUTES) TO PREVENT OVERHEATING. A MECHANIC SHOULD BE POSITIONED AT THE PROPELLER TO MANUALLY ROTATE THE PROP TO REDUCE BRUSH ARCING AND TO CHECK FOR HEAT.

- With the battery switch on and the prop anti-ice circuit breakers pushed in, temporarily place a jumper between the terminals "1" and "3" at the pressure switch to test the "auto" function of the propeller de-icers. The propeller de-icers should cycle (90 seconds on and 90 seconds off) and each one should get warm. The anti-ice ammeter should read in the green arc.
 - After the propeller de-icers have cooled, put the Prop Anti-Ice switch to the "manual" position and the anti-ice ammeter should read in the green arc.
 - Do not use the propeller anti-ice for the initial 30 minutes of flight after installation to allow the brushes to seat properly on the slip ring.
6. Insert the supplied POH/AFM Supplement in the airplane's POH/AFM.
7. Update the airplane's weight and balance records and equipment list.
8. Complete FAA form 337 stating that this Propeller has been installed in accordance with this STC.
9. Make appropriate logbook entries.

Document No. 208-4BP-IM

STC SA02092AK

HARTZELL FOUR-BLADED PROPELLER INSTALLATION INSTRUCTIONS

ON CESSNA 208(A,B) AIRCRAFT

Parts List for Kit Number D4N00193S (No De-Ice)

| Qty | Part Number | Item Description |
|-----|------------------|---------------------------------------------|
| 1 | | STC Certificate |
| 1 | 208-4BP-IM | Installation Instructions |
| 1 | 208-4BP-AFMS | Airplane Flight Manual Supplement |
| 1 | HC-D4N-3R/D9511F | Propeller Assembly without de-ice equipment |
| 8 | B-3339-1 | Bolt, Double Hexagon |
| 8 | A-2048-2 | Washer |
| 1 | C-3317-230 | O-Ring |
| 1 | A-3044 | Beta Feedback Carbon Block Assembly |
| 1 | D-630-3P | Spinner Assembly |

Document No. 208-4BP-IM

STC SA02092AK

**HARTZELL FOUR-BLADED PROPELLER INSTALLATION INSTRUCTIONS
 ON CESSNA 208(A,B) AIRCRAFT**

Parts List for Kit Number D4N00192S (With De-Ice)

| Qty | Part Number | Item Description |
|------|-------------------------|------------------------------------------------------------------------|
| 1 | | STC Certificate |
| 1 | 208-4BP-IM | Installation Instructions |
| 1 | 208-4BP-AFMS | Airplane Flight Manual Supplement |
| 1 | HC-D4N-3R/D9511FK | Propeller Assembly |
| 8 | B-3339-1 | Bolt, Double Hexagon |
| 8 | A-2048-2 | Washer |
| 1 | C-3317-230 | O-Ring |
| 1 | A-3044 | Beta Feedback Carbon Block Assembly |
| 1 | D630-3P | Spinner Assembly |
| 1 | 67-931-1 | De-Icer Kit for Propeller (BF Goodrich) |
| 1*** | 67-931-2 or-3 | De-Icer Kit for Airframe (BF Goodrich) |
| 1 | MS24140-D1 or | Relay (Eaton or equivalent) |
| 1 | HPR-100 or | Mount, Relay |
| 2 | AN960-10L | Washer |
| 2 | AN526(C)1032R10 | Screw |
| 2 | AN526(C)832R12 | Screw |
| 2 | AN960-8L | Washer |
| 4* | (MS20470AD5-7) | Rivet |
| 4* | (MS20470AD4-5) | Rivet |
| AR* | (M22759/16-12) | Wire, 12 Gauge (MIL-W-22759/16) |
| AR* | (M22759/16-20) | Wire, 20 Gauge (MIL-W-22759/16) |
| AR* | (TTI-S22 or equivalent) | Tubing, Teflon Insulating (Voltrex or equivalent) |
| 5* | (51863 or equivalent) | Crimp Connector (AMP or equivalent) Red |
| 1* | (31887 or equivalent) | Crimp Connector (AMP or equivalent) Red |
| 5* | (35109 or equivalent) | Crimp Connector (AMP or equivalent) Yellow |
| 2* | (35110 or equivalent) | Crimp Connector (AMP or equivalent) Yellow |
| 1* | (35108 or equivalent) | Crimp Connector (AMP or equivalent) Yellow |
| 2* | (31886 or equivalent) | Crimp Connector (AMP or equivalent) Red |
| 2* | (35107 or equivalent) | Crimp Connector (AMP or equivalent) Yellow |
| 2* | (M39029/30-220) | #8 Socket Contact |
| 1 | 1N4004 | Diode (Any Aviation Source) |
| AR** | S-1232-540 or W23-X1000 | Circuit Breaker, 40 AMP (Cessna or TE connectivity / Tyco Electronics) |
| AR** | MS91586-2 | Shunt |

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ON CESSNA 208(A,B) AIRCRAFT

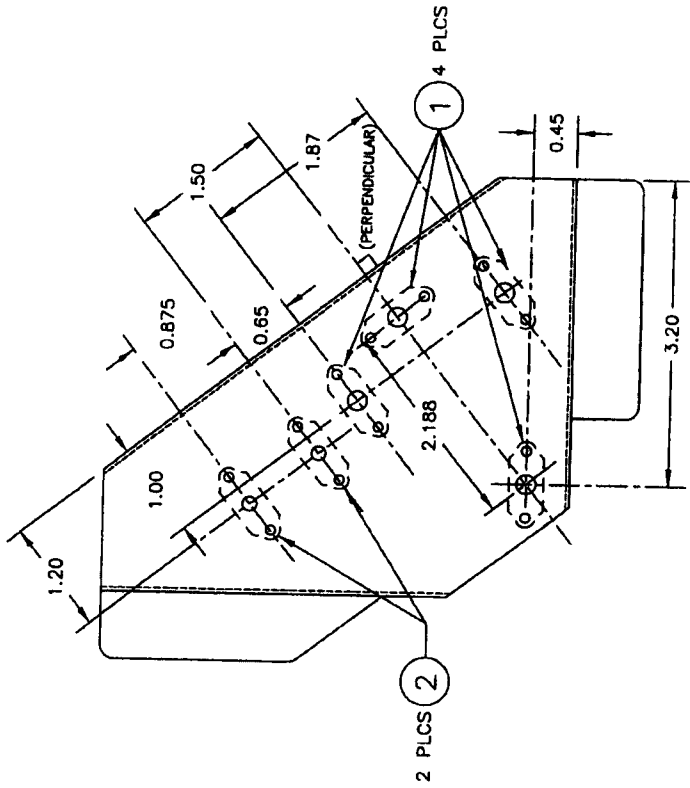
NOTES:

* Wire and connectors are not supplied as part of kit. Items are to be obtained by customer for installation as detailed in above mentioned drawings. Approximately 12 feet of M22759/16-20 (20 Gauge wire), 25 feet of M22759/16-10 (10 Gauge wire) and 4 inches of Insulating Teflon Tubing will be needed for installation.

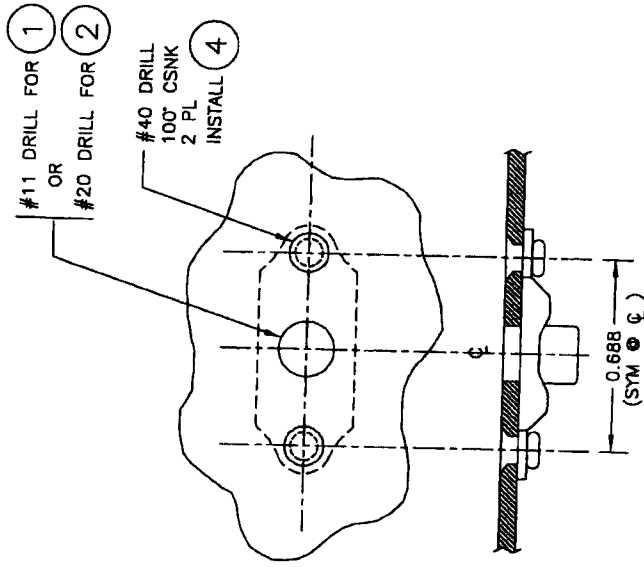
** A minimum of one S-1232-540 or W23-X1000-40 circuit breaker "PROP ANTI-ICE" will need to be replaced. Earlier model 208 and 208B Caravans may need an optional second and third 40 AMP circuit breakers for the "STBY PWR" locations in the upper left area of the circuit breaker panel. 208 series serial number 00001 to 00179 and B0001 to B0209 aircraft were originally equipped with two 30 AMP "STBY PWR" circuit breakers and must be replaced with two 40 AMP circuit breakers. Standby Power wiring and circuit breakers installation must conform to Cessna Wiring Diagram – Standby Alternator, 24-31-00 Figure 1, dated August 1, 1995 or later revision.

***The 67-931-2 De-icer Kit will be needed to replace a McCauley de-ice equipped propeller, and the 67-931-3 De-icer Kit is needed to replace a Hartzell (3-bladed) de-ice equipped propeller. The -2 and -3 kits are identical with the exception of the timer. When replacing a McCauley propeller, the de-icer timer (B45052) must be replaced with a BF Goodrich timer, P/N 3E2205-4 and will be included with the 67-931-2 De-icer Kit. When replacing a Hartzell propeller, the proper de-ice timer is already installed on the aircraft and therefore the timer is not included with the 67-931-3 De-icer Kit.

END



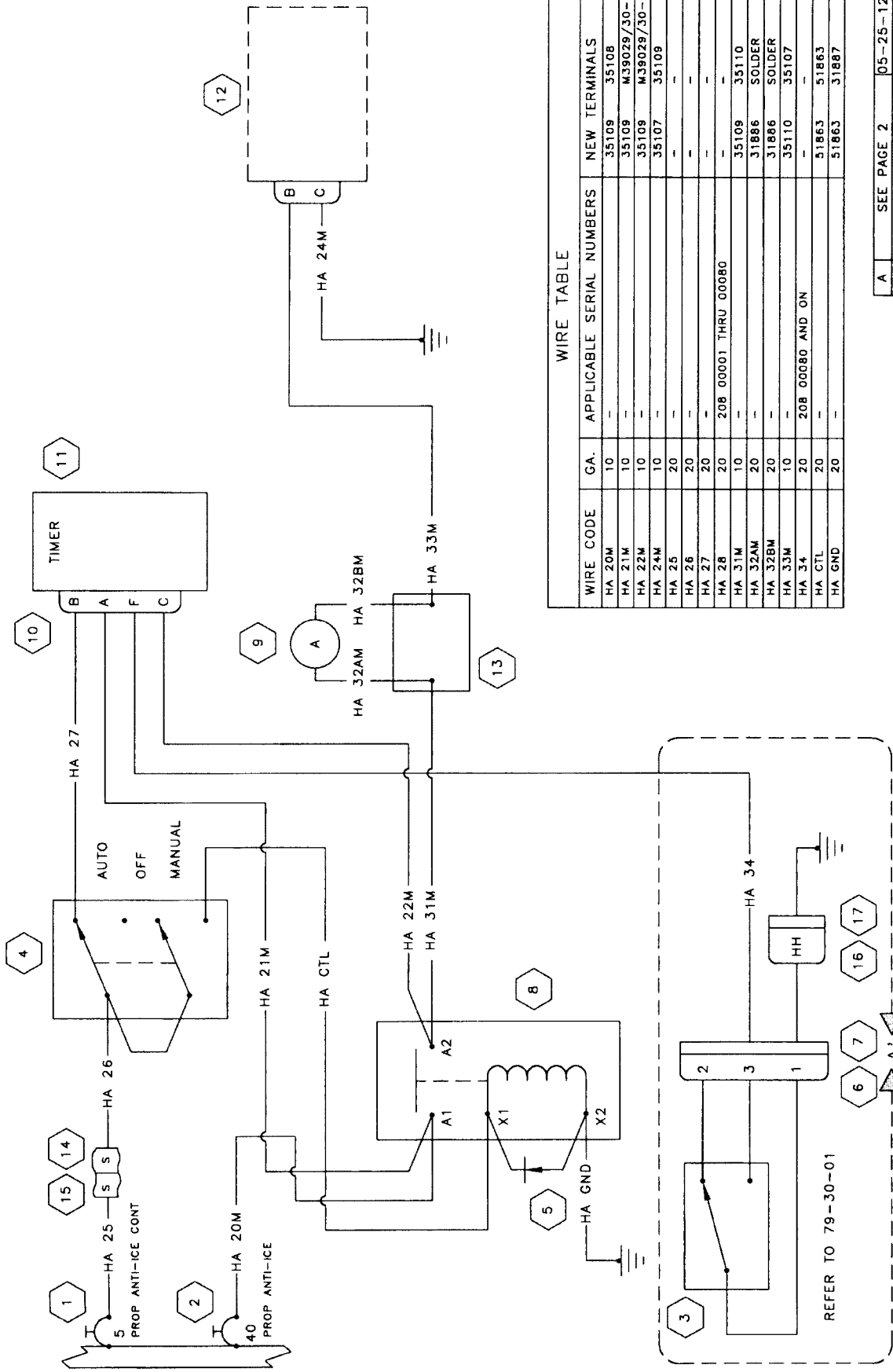
P/N HPR-100



DETAIL — NUTPLATE INSTALLATION (NOT TO SCALE)

| ITEM | QTY | PART NO. | MATERIAL | DIMENSION | SPECIFICATION | DETAIL NO. |
|------|-----|------------|----------------|-----------|---------------|-------------|
| 4 | 12 | RIVET | MS20426 AD-3-3 | | | |
| 3 | 1 | BENT PLATE | | | | |
| 2 | 2 | NUTPLATES | MS21059 L08 | | | PER SHEET 2 |
| 1 | 4 | NUTPLATES | MS21059 L3 | | | |

| | | | |
|---------------------------------------------|------------------|---------------|--------|
| A | ECO AT-136 | 06-03-10 | JMK |
| | INIT. DRAWING | 7-16-97 | VND |
| LET | REVISION | DATE | INIT |
| AERO TWIN, INC. | | | |
| 2403 MERRELL FIELD DRIVE ANCHORAGE AK 99501 | | | |
| CESSNA 208 | | | |
| HP-RELAY | | | |
| SUPPORT DETAILS | | | |
| X.X = | X.XX = | X.XXX = | X.X' = |
| ± 0.1 | ± 0.05 | ± 0.01 | ± 5' |
| DRWN: VND | DATE: 07-16-97 | SCALE: 1:2 | |
| APPVD: M. LOWETT | DWG: 208-4BP-RP1 | SHEET: 1 OF 2 | |

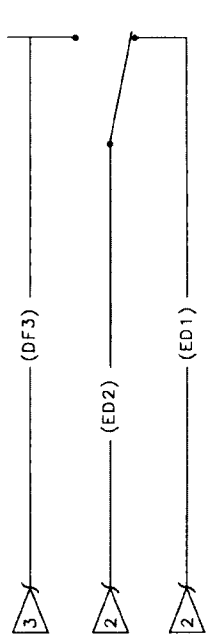


WIRE TABLE

| WIRE CODE | GA. | APPLICABLE SERIAL NUMBERS | NEW TERMINALS |
|-----------|-----|---------------------------|---------------------|
| HA 20M | 10 | - | 35109 35108 |
| HA 21M | 10 | - | 35109 M39029/30-220 |
| HA 22M | 10 | - | 35109 M39029/30-220 |
| HA 24M | 10 | - | 35107 35109 |
| HA 25M | 20 | - | - |
| HA 26M | 20 | - | - |
| HA 27M | 20 | - | - |
| HA 28M | 20 | 208 00001 THRU 00080 | - |
| HA 31M | 10 | - | 35109 35110 |
| HA 32M | 20 | - | 31886 SOLDER |
| HA 32BM | 20 | - | 31886 SOLDER |
| HA 33M | 10 | - | 35110 35107 |
| HA 34M | 20 | 208 00080 AND ON | - |
| HA CTL | 20 | - | 51863 51863 |
| HA GND | 20 | - | 51863 31887 |

| | | | |
|---------------------------------------------|----------------------------------|------------|--------|
| A | SEE PAGE 2 | 05-25-12 | LAD |
| ORIG | INIT. DRAWING | 07-16-97 | DRG |
| LET | REVISION | DATE | INIT |
| AEROTWIN, INC. | | | |
| 2404 MERRILL FIELD DRIVE ANCHORAGE AK 99501 | | | |
| CESSNA 208 | | | |
| ELECTRIC PROP DE-ICE | | | |
| WIRING DIAGRAM | | | |
| X.X = | TOLERANCE UNLESS OTHERWISE NOTED | X.XXX = | X.X° = |
| * 0.1 | * 0.05 | * 0.01 | * 3° |
| DRWN: VND | DATE: 07-16-97 | SCALE: 1:1 | |
| APP'D: M. REUSSER | DWG: 208-4BP-W1 | | |
| SHEET: 1 OF 2 | | | |

- NOTES:
1. REFER TO SHEET 2 FOR COMPONENT LIST & ADDITIONAL NOTES
 2. REFER TO LOW OIL PRESSURE WARNING WIRING DIAGRAM FOR CONTINUATION OF WIRING. REFER TO 79-30-01.
 3. REFER TO HOURMETER WIRING DIAGRAM FOR CONTINUATION OF WIRING. REFER TO 31-30-01.



DETAIL A EFF 208 00001 THRU 00080

| ITEM | DESCRIPTION | PART NUMBER | SOURCE/SPECIFICATION |
|------|-------------------------|----------------------------|-------------------------------------------------|
| 1 | CIRCUIT BREAKER, 5 AMP | S-1232-505 | EXISTING (CESSNA) |
| 2 | CIRCUIT BREAKER, 40 AMP | S-1232-540 or W23-X1000-40 | CESSNA or ANY AVIATION SOURCE |
| 3 | PRESSURE SWITCH | 9910287 | EXISTING (CESSNA) |
| 4 | SWITCH | M525307-312 | EXISTING (CESSNA) |
| 5 | DIODE | 1M4004 | ANY AVIATION SOURCE |
| 6 | CONNECTOR | S-1636-1 | EXISTING (CESSNA) |
| 7 | CONNECTOR | S-1636-2 | EXISTING (CESSNA) |
| 8 | RELAY | M524140-01 or 6041H201 | AN/MS SOURCE, MIL-R-6106 or ANY AVIATION SOURCE |
| 9 | PROP DE-ICE GAUGE | 3E1872-4 | B.F. GOODRICH |
| 10 | CONNECTOR | M53456W20-225 | EXISTING (ANY AN/MS SOURCE) |
| 11 | TIMER | 3E2205-4 | EXISTING (B.F. GOODRICH) |
| 12 | BRUSH BLOCK ASSY | 3E2090-1 | EXISTING (B.F. GOODRICH) |
| 13 | SHUNT | M591586-2 | ANY AN/MS SOURCE |
| 14 | CONNECTOR | 200513-2 | EXISTING (CESSNA) |
| 15 | CONNECTOR | S-2096-1 | EXISTING (CESSNA) |
| 16 | CONNECTOR | S-2527-1 | EXISTING (CESSNA) |
| 17 | GROUND BLOCK | S-2527-2 | EXISTING (CESSNA) |

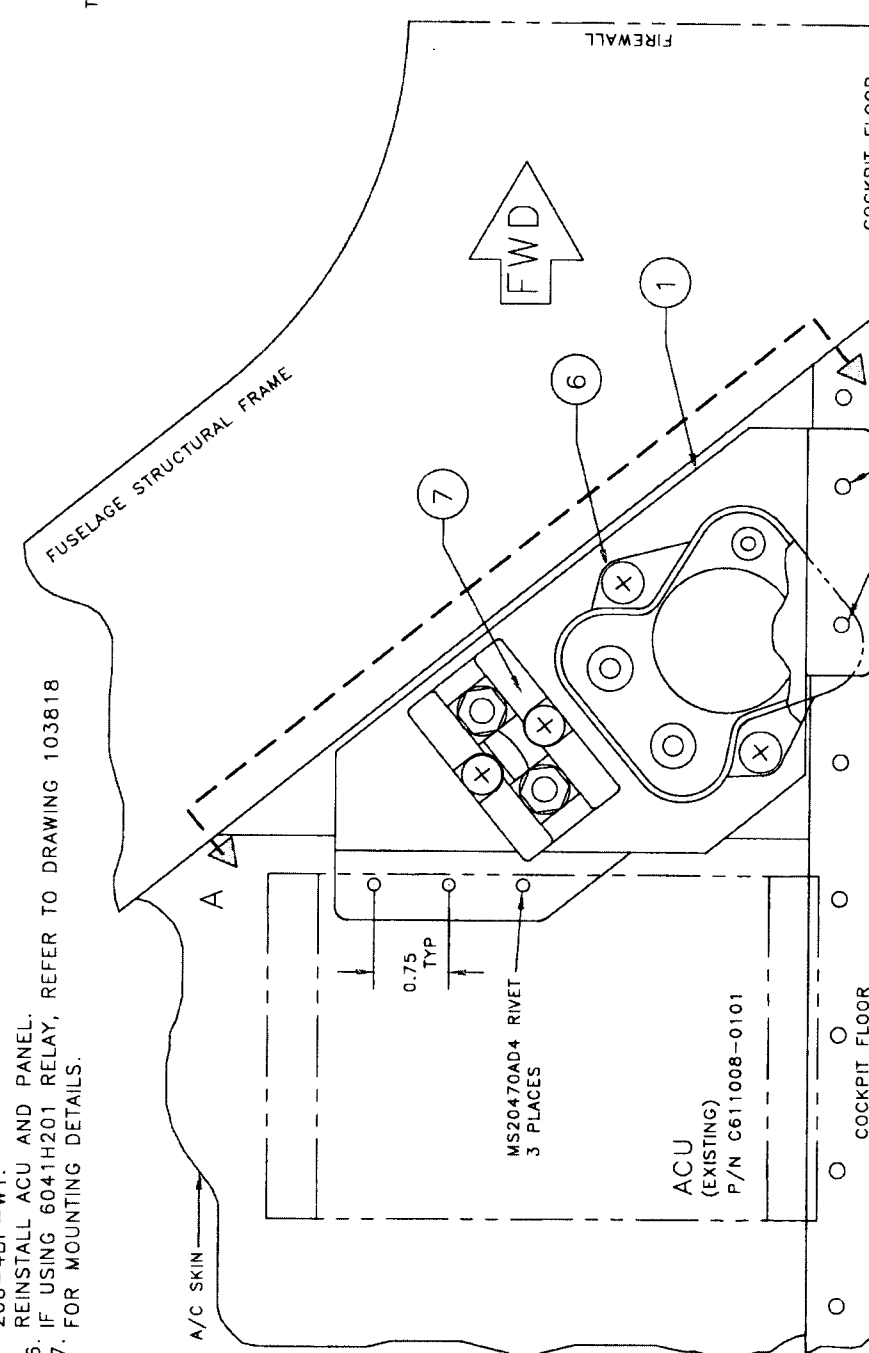
NOTES:

1. WIRE TO CONFORM WITH M22759/16 OR EQUIVALENT
2. TERMINALS TO CONFORM WITH MIL-T-7928 OR EQUIVALENT
3. MOV VARISTOR CESSNA P/N 2670069 TO BE REMOVED AND DISCARDED
4. DIODE LEADS TO BE INSULATED USING TEFLON INSULATING TUBING, P/N: TTI-S22 OR EQUIVALENT
5. REF CESSNA DWG NUMBER: 2671000, ELECTRIC PROP DE-ICE FOR ORIGINAL SYSTEM CONFIGURATION INFORMATION
6. ALL SWITCHES SHOWN IN AUTO POSITION
7. WIRING TO BE ACCOMPLISHED IAW AC 43.13-1A/2A
8. 208 SERIES AIRCRAFT SERIAL NUMBERS 0001 TO 0179 AND B0001 B0209 WERE ORIGINALLY EQUIPPED WITH TWO 30 AMP "STBY PWR" CIRCUIT BREAKERS AND MUST BE REPLACED WITH TWO 40 AMP CIRCUIT BREAKERS IAW WIRING DIAGRAM - STANDBY ALTERNATOR, 24-31-00 FIGURE 1, DATED AUGUST 1, 1995 OR LATER REVISION.
9. INSTALLING AGENCY MAY USE WIRE NUMBERS OTHER THAN THOSE INDICATED ON DRAWING NO. 208-4BP-W1, SHEET 1

| | | | |
|--------------------------------------------|------------------------|----------|------|
| A | ADD CB, RELAY ALT P/No | 05-25-12 | LAD |
| ORIG | INIT. DRAWING | 07-16-97 | VND |
| LET | REVISION | DATE | INIT |
| AERO TWIN, INC. | | | |
| 2404 MERRILL FIELD DRNE ANCHORAGE AK 99501 | | | |
| CESSNA 208 | | | |
| ELECTRIC PROP DE-ICE COMPONENT LIST | | | |
| XX = | XXX = | XXX = | X* = |
| 01 = | 005 = | 001 = | 3 = |
| DRAWN: VND DATE: 07-16-97 SCALE: 1:1 | | | |
| APPD: M. HEUSSER DWG: 208-4BP-W1 | | | |
| SHEET: 2 OF 2 | | | |

INSTALLATION NOTES:

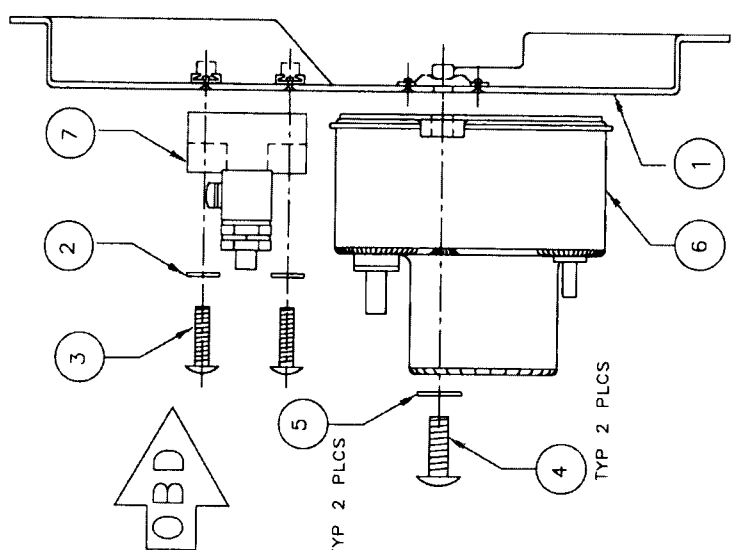
1. LOCATE ZONE 211 BEHIND FWD LH PANEL P/N 2615117-9 (KICK-PANEL FWD OF C/B PANEL). REMOVE SCREWS SECURING ALTERNATOR CONTROL UNIT (ACU) AND POSITION ACU OUT OF THE WAY. REMOVE SOUND DAMPENING MATERIAL AS REQUIRED.
2. POSITION SUPPORT BRACKET AS SHOWN; REMOVE EXISTING RIVETS THAT FALL UNDER BOTTOM FLANGE, THEN MATCH DRILL FLANGE (#21 DRILL).
3. DRILL 3 HOLES THROUGH TOP FLANGE AND A/C SKIN, 0.75" SPACING (#30 DRILL FOR -4 RIVETS).
4. INSTALL SUPPORT BRACKET USING 2 MS20470AD5 AND 3 MS20470AD4 RIVETS OF APPROPRIATE LENGTH, I.A.W. AC43.13-1A.
5. INSTALL RELAY AND SHUNT ON BRACKET; INSTALL DE-ICE SYSTEM WIRING I.A.W. DRAWING NO. 208-4BP-W1.
6. REINSTALL ACU AND PANEL.
7. IF USING 6041H201 RELAY, REFER TO DRAWING 103818 FOR MOUNTING DETAILS.



VIEW LOOKING OUTBOARD

EXISTING RIVET LOCATIONS
MS20470AD5 RIVET
2 PLACES

| ITEM | QTY | DESCRIPTION | PART NUMBER |
|------|-----|-------------|------------------------|
| 7 | 1 | SHUNT | MS91586-2 |
| 6 | 1 | RELAY | MS24140-D1 or 6041H201 |
| 5 | 2 | WASHER | AN960-10L |
| 4 | 2 | SCREW | AN526(C)1032 R10 |
| 3 | 2 | SCREW | AN526(C)832 R12 |
| 2 | 2 | WASHER | AN960-8L |
| 1 | 1 | SUPPORT | HPR-100 or 103849 |



VIEW A-A (ROTATED)
LOOKING DOWN AND AFT

| | | |
|--------------------------------------------------|------------------|----------------|
| ADD NOTE 7: ADD RELAY AND SUPPORT ALT P/No | 5-25-12 | LAD |
| INIT. DRAWING | 7-16-97 | MWL |
| REVISION | DATE | INIT |
| AEROTWIN, INC. | | |
| 2404 MERRILL FIELD DRIVE ANCHORAGE AK 99501 | | |
| CESSNA 208 | | |
| HERMETIC POWER RELAY INSTALLATION | | |
| <small>TOLERANCES UNLESS OTHERWISE NOTED</small> | | |
| X.X = 0.1 | X.XX = 0.05 | X.XXX = 0.01 |
| X.X° = 0.1° | X.XX° = 0.05° | X.XXX° = 0.01° |
| DRWN: MWL | DATE: 07-16-97 | SCALE: 1:2 |
| APPVD: M. LOVETT | DWG: 208-4BP-R11 | SHEET: 1 OF 1 |

4 3 2 1 A B C D

103849 67800 2

| | | |
|------|----------------------------------------------------|------------|
| LET. | CHANGE | APPROV. |
| A | DRAWING REVISION COLUMN WAS: DRAWING REVISION A | ECO-110619 |

NOTES:

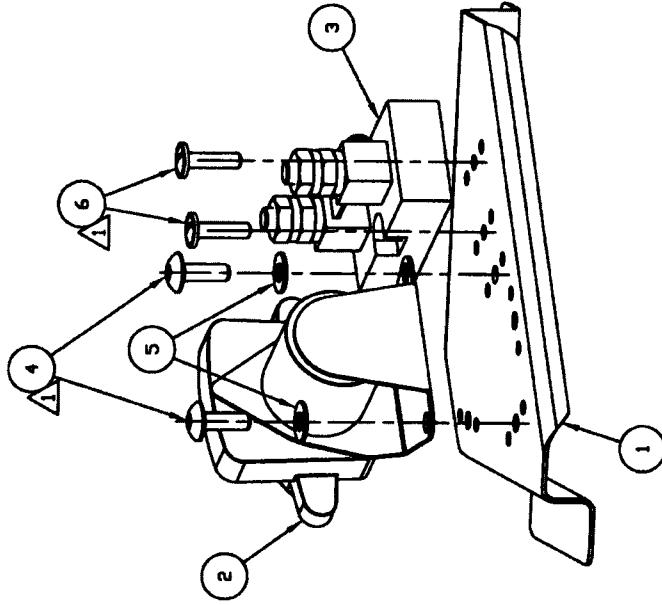
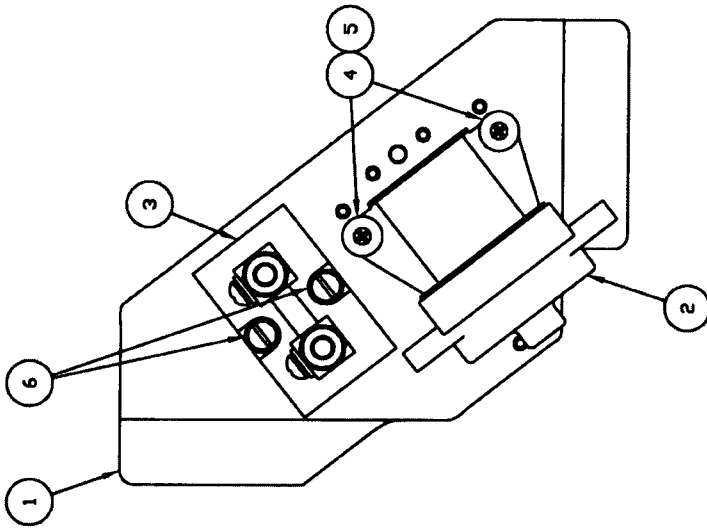
- 1 IDENTIFY PER H-S-13, SECTION 5.4 (BAG), P/N & REV., UPON RECEIPT

| | | | |
|-------------------|-----------------------------|----------------------------|------------------|
| HARTZELL PART NO. | AERO TWIN (VENDOR) PART NO. | AERO TWIN (VENDOR) DRAWING | DRAWING REVISION |
| | 103849 | HPR-100 | 208-4BP-RP1 |
| | | SHEET 1 | SHEET 2 |
| | | A | - |


| | | | | | | | | |
|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------|-----------------------------------------|---------------------------------------------------------------|------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <p>HARTZELL HARTZELL PROPELLER INC. One Propeller Place Piquette, OH 45356-2634</p> | <p>"THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION AND SUCH INFORMATION MAY NOT BE DISCLOSED TO OTHERS FOR ANY PURPOSE OR USED FOR MANUFACTURING WITHOUT PERMISSION FROM HARTZELL PROPELLER INC."</p> | | | | <p>WEIGHT: ECO-109048</p> <p>SHEET 1 OF 1</p> <p>REPLACES</p> | | <p>TOLERANCES UNLESS OTHERWISE NOTED:</p> <p>DECIMALS: ±.03 ±.010 ±.0000 ±.0005 ±.5° FRACTIONS: ±1/32 (also see A-3316)</p> | |
| | <p>MATERIAL</p> <p>HEAT-TREAT</p> <p>FINISH</p> | | <p>DIN</p> <p>7/7/10</p> <p>DRAWN</p> | <p>MLM</p> <p>7/7/10</p> <p>CHECKER</p> | <p>APPROVED</p> | <p>REPLACED BY</p> <p>DO NOT SCALE</p> <p>DISTRIBUTION</p> | | <p>103849</p> |

4 3 2 1 A B C D

| | | | |
|------|------|--------|---------|
| LET. | DATE | CHANGE | APPROV. |
|------|------|--------|---------|



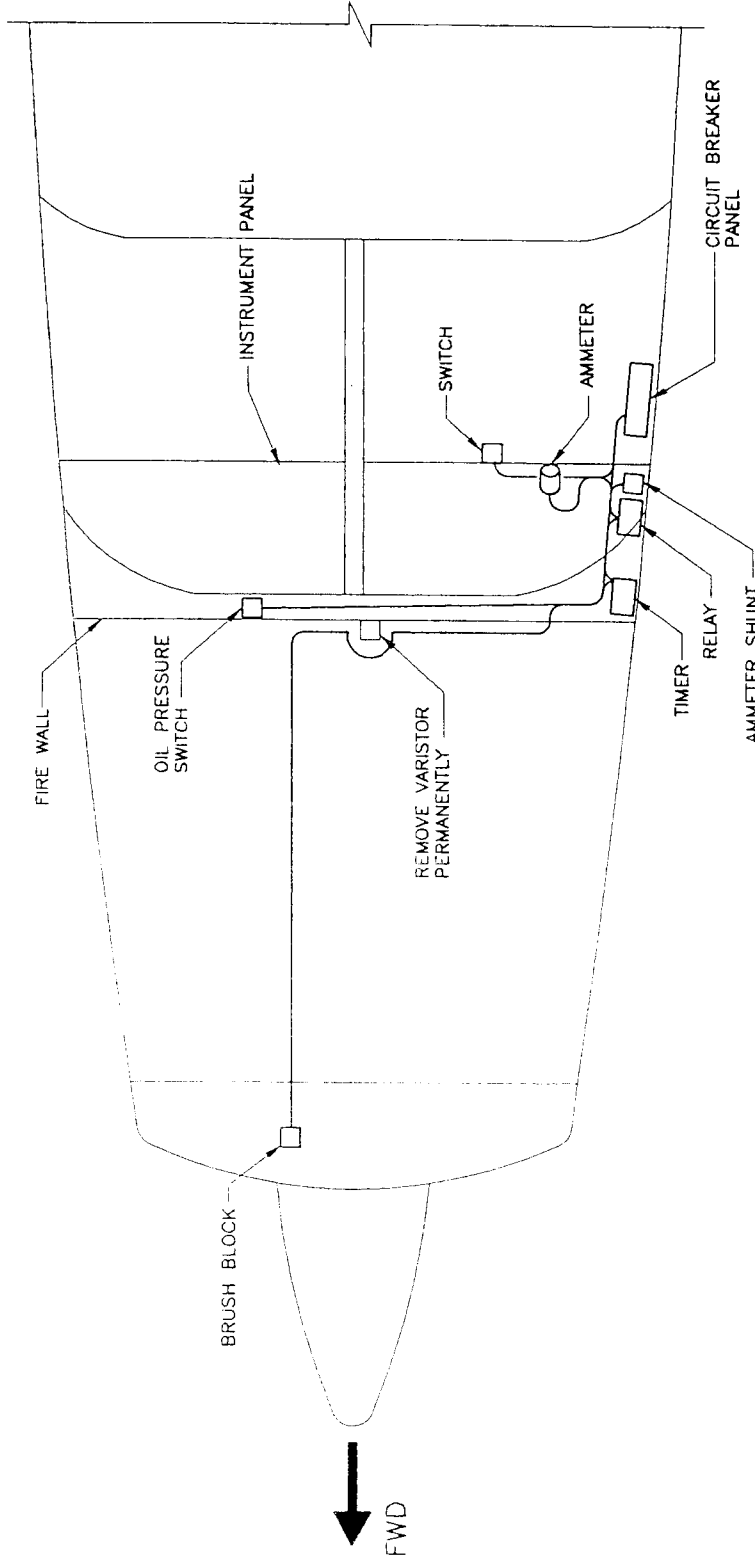
NOTES:

 TIGHTEN UNTIL SNUG

| QTY | ITEM NO. | PART NO. | DESCRIPTION |
|-----|----------|-------------|--------------------------|
| 2 | 6 | B-6976-10 | SCREW, B-32, WASHER HEAD |
| 2 | 5 | B-3837-0332 | WASHER, CRCS |
| 2 | 4 | B-3845-8 | SCREW, 10-32, TRUSS HEAD |
| 1 | 3 | 91586-2 | SHUNT |
| 1 | 2 | 6041H201 | RELAY |
| 1 | 1 | 103849 | HPR-100 SUPPORT PLATE |

| | | | | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|----------------------|-------------------------------------|------------------------------|
| <p>HARTZELL HARTZELL PRECASTER, INC. P.O. BOX 1000 HARTZELL, MISSISSIPPI 38851</p> <p>THIS DRAWING CONTAINS INFORMATION THAT IS UNCLASSIFIED AND SUCH INFORMATION MAY NOT BE RELEASED TO OTHERS FOR ANY PURPOSES EXCEPT AS AUTHORIZED BY THE SECRETARY OF THE ARMY, WASHINGTON, D.C. 20315</p> | | | | WEIGHT SHEET OF 1 | HAZARDOUS MATERIALS YES NO | 103818 |
| | | | | REPLACES BY | APPROVED BY | DO NOT SCALE DISTRIBUTION |
| <p style="text-align: center;">POWER RELAY ASSEMBLY</p> | | | | | | |

103818

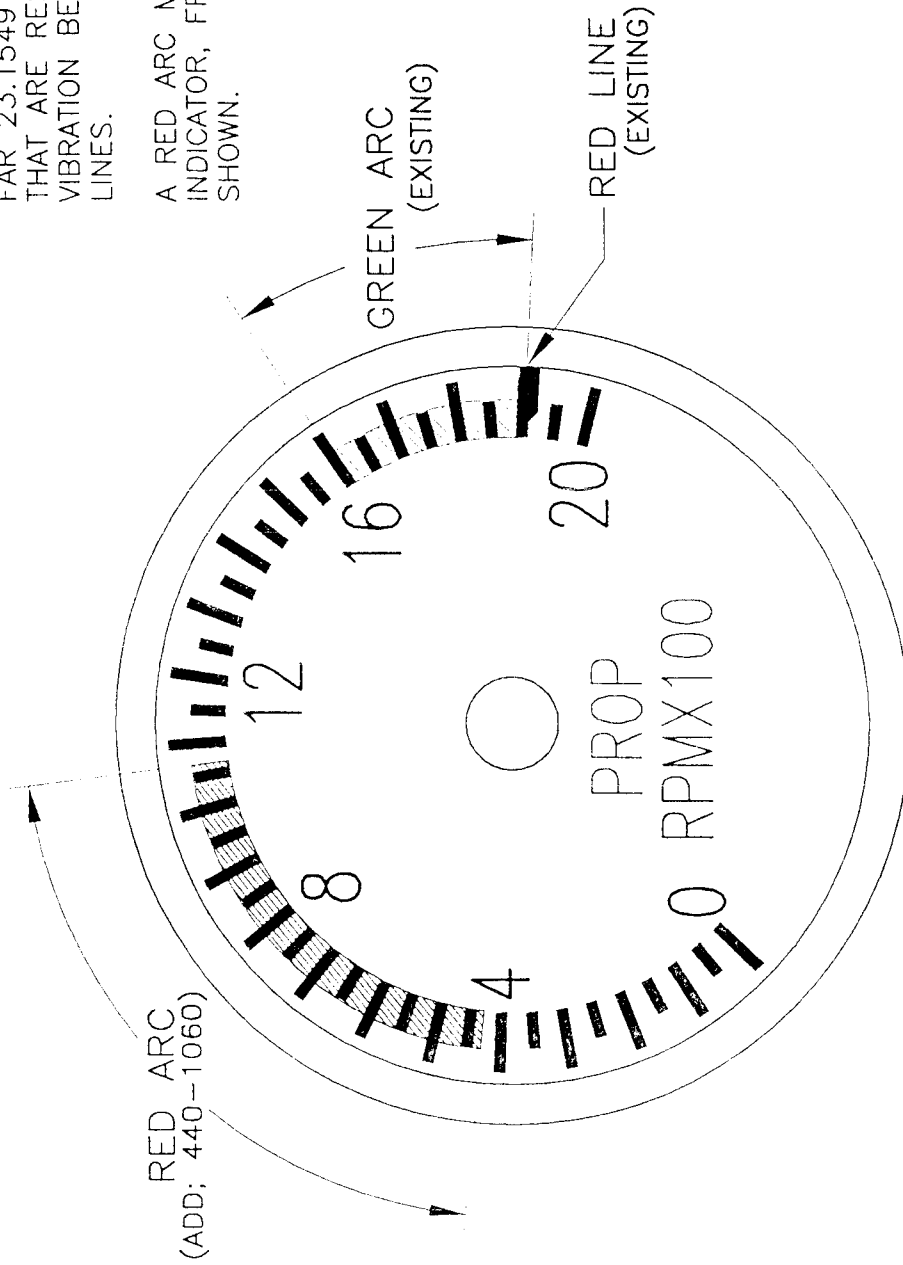


TOP VIEW

| | | | |
|---------------------------------------------|------------------|---------------|------------|
| LET | INIT | DRAWING | VND |
| | REVISION | DATE | INIT |
| AERO TWIN, INC. | | | |
| 2404 MERRILL FIELD DRIVE ANCHORAGE AK 99501 | | | |
| CESSNA 208 SERIES | | | |
| WIRE ROUTING | | | |
| COMPONENT LOCATIONS | | | |
| TOL: .x=+1. .xx=+0.5. .xxx=+0.1. x=+3.3 | DWN: VND | DATE: 7-16-97 | SCALE: NTS |
| APP'D: M. HEISSER | DWG: 208-4BP-WR1 | SHEET: 1 OF 1 | |

NOTE:
 FAR 23.1549 REQUIRES THAT PROPELLER RANGES
 THAT ARE RESTRICTED BECAUSE OF EXCESSIVE
 VIBRATION BE MARKED WITH RED ARCS OR RED
 LINES.

A RED ARC MUST BE ADDED TO THE PROP RPM
 INDICATOR, FROM 440 RPM TO 1060 RPM, AS
 SHOWN.



| RED ARC | GREEN ARC | RED LINE |
|------------------|------------------|---------------|
| PROHIBITED RANGE | NORMAL OPERATING | MAXIMUM LIMIT |
| 440-1060 RPM | 1600-1900 RPM | 1900 RPM |

| | | |
|---------------------------------------------|-----------------|------------|
| INIT. | DRAWING | MWL |
| LET | REVISION | DATE |
| AERO TWIN, INC. | | |
| 2404 MERRILL FIELD DRIVE ANCHORAGE AK 99501 | | |
| PROP RPM INDICATOR MARKINGS | | |
| DWN: MWL | DATE: 07-16-97 | SCALE: NTS |
| APP'D: M. LOVETT | DWG: 208-4BP-P1 | |
| SHEET: 1 OF 1 | | |